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AUTHOR Bouas, M. Jean
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ABSTRACT

This study examined how methods courses affected preservice teachers' knowledge of and attitudes toward cooperative learning. Data were gathered utilizing a pre/post course attitude survey, a pre/post class true/false test, postclass interviews, and interviews conducted with subjects during their respective student teaching experiences. Participants were elementary education majors (N=53) who were enrolled in one or more of three methods classes. Fourteen class members participated in post class interviews and two members were followed from the methods classes into their respective student teaching experiences. Findings indicate that instruction and experiences with cooperative learning in the three methods classes appeared to have had a positive effect on subjects' attitudes and knowledge related to cooperative learning; they also showed that, consistent with the literature, subjects recognized the pedagogical value of preservice teacher education experiences that enabled them to learn about cooperative learning as a model of instruction and provided them with the opportunity to experience the model. Tables display statistical data. The attitude survey, true false test, and procedures for analyzing qualitative data are appended. (LL)

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Preservice Teachers and Cooperative Learning: Their Attitudes Toward, Experiences With and Knowledge About This Teaching-Learning Strategy

M. Jean Bouas
Assistant Professor
Northwest Missouri State University
220 Brown Hall
Maryville, Missouri
Phone: 816-562-1771

Research Report presented at the 1993 Annual Meeting of the Association of Teacher Educators
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Preservice Teachers and Cooperative Learning: Their Attitudes Toward, Experiences With and Knowledge About This Teaching-Learning Strategy

Cooperative learning has been found to enhance student achievement, encourage positive self-esteem, and facilitate growth in social interaction skills (Johnson and Johnson, 1991; Slavin, 1991). In spite of reported benefits, cooperative learning is not widely used in American schools (Goodlad, 1984; Johnson, Johnson, Holubec and Roy, 1988). If future teachers are to make positive use of cooperative learning, they need to know what it is, recognize the value of the strategy for their students and have knowledge and skill to plan cooperative learning activities.

Stating that one believes in the value of a particular method or model of teaching and knowing how to implement a given model are not the same. One is a belief; the other is a pedagogical competence. Richardson, (1990) suggested that in order for significant and worthwhile change in the practice of teaching to occur, teachers should be encouraged to reflect on the value premises they hold, practical knowledge they possess and research based findings related to a given teaching topic or practice. Therefore, teacher educators face the challenge of how best to insure that preservice teachers acquire the knowledge and skill to enable them to implement cooperative learning and at the same time influence them to want to learn to use the model.

Purpose of the Study

The intent of this study was to examine the effect participation in preservice teacher education methods classes at a regional midwestern

university had on subjects' attitudes toward, knowledge about academic and social benefits related to, and knowledge of how to organize future classes for cooperative learning. The purpose of the study was three-fold. First, it was to describe the effect participation in the considered methods classes had on preservice teachers' knowledge about academic and social benefits of and their attitudes toward group work/cooperative learning. Second, it was to follow two preservice teachers from the methods classes under consideration into their respective student teaching experiences in order to describe their attitudes toward group work/cooperative learning and their knowledge of how to organize this model of instruction during student teaching. Third, it was to discover information that could be used by teacher educators when making decisions regarding instruction about and use of group work/cooperative learning in preservice teacher education. This study was significant because it concomitantly analyzed preservice teachers' perceptions of their pedagogical knowledge regarding how to implement cooperative learning and their attitudes toward this model of teaching.

Research Questions

1. Did instruction about and experience with group work/cooperative learning in preservice methods classes positively influence preservice teachers' attitudes toward this model of teaching?

2. Did instruction about and experience with group work/cooperative learning in preservice methods classes positively influence subjects' knowledge of the academic and social benefits of the model? (Academic benefits include higher achievement, more on task behavior, increased retention, more frequent higher-level reasoning, deeper-level understanding, critical thinking, and more positive

attitude toward school. Social benefits include the development of interpersonal communication skills, tolerance, higher self-esteem, positive, trusting, accepting and supportive relationships with peers regardless of ethnicity, sex, ability, social class, or handicaps.)

3. After participating in one of the methods classes under consideration in this study where there was instruction and discussion about and/or opportunity to experience group work/cooperative learning, what perceptions did preservice teachers have regarding desire and knowledge to implement group work/cooperative learning in their future classrooms?

4. At the end of their respective student teaching experiences, what perceptions did two student teachers have regarding desire and pedagogical competence to organize and implement group work/cooperative learning in their future classrooms?

Research Design

The research paradigm for this study was naturalistic and utilized both qualitative and quantitative methodologies to collect data for the purpose of describing preservice teachers' attitudes toward, experiences with and knowledge about cooperative learning. Four data sources were used: a researcher designed pre-post Likert scale survey of attitudes/opinions toward cooperative learning; a researcher designed pre-post true/false test of knowledge about academic and social benefits associated with cooperative learning; post-class interviews; and interviews conducted with two subjects during their respective student teaching experiences. The pre-post survey and pre-post true/false test were administered to subjects enrolled in one of three methods classes in one academic semester. A number of these subjects participated in post-class interviews and two were interviewed three times each during

their respective student teaching experiences. (See Appendices A and B for the full texts of the true/false test of knowledge and the attitude/opinion survey.) The qualitative data obtained from interviews was triangulated with the quantitative data (attitude/opinion survey and true/false test of knowledge regarding cooperative learning).

Setting and Subjects

The setting for the study was the preservice teacher education program at Southern Illinois University at Carbondale. Specifically, the study involved 53 elementary education majors who were enrolled in one or more of the following three methods classes in the preservice teacher education program at Southern Illinois University at Carbondale during one academic semester: Teaching Language Arts in the Elementary School, Teaching Reading in the Elementary School and/or Classroom Management and Discipline. All of the subjects were volunteers. Course instructors were provided with a copy of the study abstract but had no access to students' individual responses.

For the post class interviews, representatives from all three methods classes were interviewed. Fourteen subjects participated in post-class interviews. Two of subjects interviewed in the post-class interviews were followed into their respective semesters of student teaching in order to examine their attitudes toward and use of cooperative learning as student teachers. They each taught in one of the Southern Illinois University teacher education centers. The researcher investigated the setting of the student teaching assignments to insure that the participants would have freedom to utilize group work/cooperative learning activities in their assigned classrooms should they desire to do so. The researcher did not serve in an evaluative

role for either of the student teachers during their respective student teaching experiences.

The researcher observed every class session in all three methods classes under consideration in this study during one academic semester to identify what was done in the classes that was related to group work/cooperative learning. Field notes obtained from those observations revealed that subjects received instruction about group work/cooperative learning. Subjects also experienced and discussed group work/cooperative learning in the three methods classes.

Data Analysis

The pre-post Likert scale survey of attitudes/opinions and the pre-post true/false test of knowledge were treated statistically. A dependent *t*-test was run on individual attitude/opinion survey items to determine degree of change in attitudes/opinions from the beginning of the semester to the end of the semester of data collection. A dependent *t*-test was run for each class on the pre-post true/false test of knowledge to assess degree of composite change in preservice teachers' knowledge about academic and social benefits associated with cooperative learning. The qualitative data obtained in the post-class interviews with 14 subjects and the data obtained from interviews conducted with two student teachers were analyzed using an interpretive/descriptive analysis procedure (Tesch, 1990). (See Appendix C for procedures used in analyzing qualitative data.)

Because the research interest of this study was to discover patterns in ideologies (attitudes toward group work/cooperative learning) and patterns/themes reflecting strengths and deficiencies (depth and breadth in preservice teachers' perceptions of their knowledge about group work/cooperative learning), the method of analysis

of the qualitative data (interviews) was interpretative/descriptive. In the analysis of the qualitative data, the researcher looked for consistency in overall patterns or themes. The quantitative data was triangulated with the qualitative data.

Findings

Instruction about and experiences with group work/cooperative learning in the three methods classes appeared to have had a positive effect on subjects' attitudes toward and their knowledge about academic and social benefits related to group work/cooperative learning. The findings provide insight into how instruction about and experiences with group work/cooperative learning in three preservice teacher education classes impacted subjects' perceptions of their desire and pedagogical competence to implement cooperative learning in their future classes. A summary of the findings is presented in the following paragraphs.

Finding Related to Research Question #1

Attitude/Opinion Survey Data. Tables 1, 2 and 3 present the pre- and post-mean scores for the language arts methods, reading methods and discipline and management classes. Table 4 presents the pre- and post-mean differences for each class. All means in all three classes moved in a positive direction with the exception of Items C, D, and J. Other than Item C, there were only two survey items, A and H, with pre- or post-means below 5. The pre-means on these items were not low. Means on both items moved in a positive direction on the post-assessment. Items A and H were somewhat related. The fact that the means were lower on these two items than any other items may suggest that subjects have trouble trusting group mates when working collaboratively.

TABLE 1

Data Summary - Language Arts Methods

Pre-Post Means

Survey Items	Pre Mean	Post Mean
A. I think cooperative group work lightens the work load for all group members because the responsibility for completion of the task is shared.	5.39	5.56
B. I like small group learning because it reduces competitiveness and builds camaraderie.	5.43	5.65
C. I think students should be grouped so that all members are about the same ability level.	2.82	2.47
D. I feel competent to plan cooperative learning activities for my students in my grade interest/major (which is_____)	5.78	5.30
E. I think I will use cooperative learning as a teaching strategy very frequently.	5.13	5.34
F. When I am involved as a student in cooperative learning activities, I feel closer to my classmates as a result of the group work.	5.60	6.13
G. When working in learning teams, I think I put forth more effort to perform well on assignments because I feel an obligation toward other group members to do well.	5.69	6.17
H. I think it is easy to trust other group members to carry their share of the group work load.	4.04	5.17*
I. I think group learning helps students learn to be tolerant and considerate of the opinions of other group members.	5.39	5.86
J. I find it easy to become involved in learning when working in a (small) group.	5.86	5.73
True-False Test of Knowledge About Group Work	8.08	8.82*

*differences significant at p< .05

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TABLE 2

Data Summary - Reading Methods

Pre-Post Means

Survey Items	Pre Mean	Post Mean
A. I think cooperative group work lightens the work load for all group members because the responsibility for completion of the task is shared.	4.85	5.20
B. I like small group learning because it reduces competitiveness and builds camaraderie.	5.15	5.60
C. I think students should be grouped so that all members are about the same ability level.	2.90	2.15
D. I feel competent to plan cooperative learning activities for my students in my grade interest/major (which is_____)	5.15	5.70
E. I think I will use cooperative learning as a teaching strategy very frequently.	5.25	6.10*
F. When I am involved as a student in cooperative learning activities, I feel closer to my classmates as a result of the group work.	5.80	6.05
G. When working in learning teams, I think I put forth more effort to perform well on assignments because I feel an obligation toward other group members to do well.	5.65	5.70
H. I think it is easy to trust other group members to carry their share of the group work load.	3.90	4.15
I. I think group learning helps students learn to be tolerant and considerate of the opinions of other group members.	5.70	5.90
J. I find it easy to become involved in learning when working in a (small) group.	5.30	5.80
True-False Test of Knowledge About Group Work	7.80	9.50*

*differences significant at p< .05

TABLE 3

Data Summary - Discipline & Management

Pre-Post Means

Survey Items	Pre Mean	Post Mean
A. I think cooperative group work lightens the work load for all group members because the responsibility for completion of the task is shared.	4.70	5.00
B. I like small group learning because it reduces competitiveness and builds camaraderie.	5.00	6.40*
C. I think students should be grouped so that all members are about the same ability level.	2.70	1.80
D. I feel competent to plan cooperative learning activities for my students in my grade interest/major (which is_____)	5.50	5.70
E. I think I will use cooperative learning as a teaching strategy very frequently.	5.00	5.80*
F. When I am involved as a student in cooperative learning activities, I feel closer to my classmates as a result of the group work.	5.90	6.50
G. When working in learning teams, I think I put forth more effort to perform well on assignments because I feel an obligation toward other group members to do well.	5.50	6.00
H. I think it is easy to trust other group members to carry their share of the group work load.	4.30	4.90
I. I think group learning helps students learn to be tolerant and considerate of the opinions of other group members.	5.40	6.00
J. I find it easy to become involved in learning when working in a (small) group.	5.70	6.20
True-False Test of Knowledge About Group Work	8.70	9.70*

differences significant at p< .05

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TABLE 4

Composite Summary of Data - Attitude Survey

(differences)

A. I think Cooperative group work lightens the work load for all group members because the responsibility for completion of the task is shared.	+.17	+.35	+.30
B. I like small group learning because it reduces competitiveness and builds camaraderie.	+.21	+.45	+1.40*
C. I think students should be grouped so that all members are about the same ability level.	-.34	-.75*	-.90
D. I feel competent to plan cooperative learning activities for my students in my grade interest/major (which is _____).	-.47	+.55	+.20
E. I think I will use cooperative learning as a teaching strategy very frequently.	+.21	+.85*	+.80*
F. When I am involved as a student in cooperative learning activities, I feel closer to my classmates as a result of the group work.	+.52	+.25	+.60
G. When working in learning teams, I think I put forth more effort to perform feel well on assignments because I feel an obligation toward other group members to do well.	+.47	+.05	+.50
H. I think it is easy to trust other group members to carry their share of the group work load.	+1.13*	+.25	+.23
I. I think group learning helps students learn to be tolerant and considerate of other group members.	+.47	+.20	+.60
J. I find it easy to become involved in learning when working in a (small) group.	-.13	+.50	+.50
True-False Test of Knowledge About Group Work	+.73*	+1.70*	+1.00*

*differences significant at p< .05

Post Class Interview Data. All fourteen interviewees expressed that group work/cooperative learning in the methods classes fostered the creation of a positive learning environment and all subjects identified at least one academic or social benefit derived from their cooperative learning experiences in the methods classes. The benefits described by the subjects fell into two main categories: academic outcomes and nurturant effects/social benefits. Academic benefits identified by the subjects included higher grade achievement, expansion of perspectives, and clarification/reinforcement of understanding. Nurturant effects/social benefits identified included more person to person interaction, creation of more enjoyable learning atmosphere, growth in self-confidence, and emergence of more teamwork.

Student Teaching Interview Data. Both student teachers stated that learners benefited socially as a result of cooperative learning. When children collaborate with peers in the classroom, they practice communication skills. They share ideas, resolve differences, listen to one another and learn to care about each other.

Findings Related to Research Question #2

Findings from the four sets of data suggested that instruction about and experience with group work/cooperative learning in methods classes positively influenced subjects' knowledge of academic and social benefits of the model.

True/False Test Data. The test dealt with research based academic and social benefits associated with the cooperative learning model. Pre-means were not low but post-means moved in a positive direction. At an alpha level of .05, the post means were significantly higher than pre-means.

Attitude/Opinion Survey Data. Items dealing with attitudes and opinions regarding academic and social benefits moved in a positive direction with the exception of item J in one class. Item H, which dealt with learning to trust, had a post-mean below 5 in two classes. This was the only item dealing with academic and social benefits that had a post-mean below 5.

Post-Class Interview Data. Subjects described their own personal awareness of the academic and social benefits of group work/cooperative learning as it was experienced in the methods classes.

Student Teaching Interview Data. Both student teachers stated that they observed positive social outcomes in their field placement sites as a result of group work/cooperative learning activities.

Findings Related to Research Question #3

Attitude/Opinion Survey Data. Items D and E dealt with perceived competence and anticipated use of cooperative learning in future classrooms. The pre-mean range on these two items was 5.00-5.78 and the post-mean range was 5.30-6.10. Subjects seemed to feel a moderate degree of confidence about their pedagogical competence to plan cooperative learning activities. The post-means on Item E suggested that subjects think they will use cooperative learning frequently.

Post-Class Interview Data. Three major categories emerged in the post-class interview data that reflect desire and competence to implement cooperative learning, Those three categories are listed and briefly described.

1. Potential Uses. The potential uses cited were: literature study groups, social studies and/or science projects, and practice and reinforcement activities.

2. Perceptions of Knowledge to Implement Cooperative Learning. Five sub-categories emerged in the interview data regarding subjects' perceptions of the knowledge they felt they had about how to implement cooperative learning. Those five sub-categories were: structure cooperative learning so that learners are individually accountable; consider group compatibility when forming groups; clearly define group task and behavioral expectancies; allow adequate time for the cooperative learning to take place; and set aside time to plan cooperative learning activities. There was not a consensus view regarding how to insure individual accountability. Subjects identified nine different possibilities.

3. Value Of, Exposure To and Engagement In Cooperative Learning While in Preservice Teacher Education. Subjects felt that the cooperative learning activities they experienced in the methods classes had a positive effect on their academic learning and/or social interactions. They expressed that participation in cooperative learning provided them with background knowledge and experience that would make them more willing and able to orchestrate cooperative learning in their future classrooms. While they spoke positively about the cooperative learning activities in the methods classes, 12 of the 14 interviewees expressed that more direct instruction about and/or more opportunity to engage in cooperative learning activities would have strengthened their confidence and competence to implement this model.

Findings Related to Research Question #4

Both student teachers expressed their intentions to use cooperative learning in their future classrooms. They both, however, expressed uncertainty about the depth and breadth of their pedagogical competence to organize and implement this model of instruction. Two categories

that emerged in the interviews with the student teachers were: perceptions of the relationship between structuring strategies and positive outcomes and perceived constraints that influenced decisions regarding their use or non-use of cooperative learning while student teaching. In the latter category, student teachers talked about time needed to implement cooperative learning activities, expertise of the teacher to orchestrate cooperative learning, lack of training, concern about evaluation during the student teaching experience.

Conclusion

The findings from this study support what Dewey (1938) and Brown, Collins and Duguid (1989) have advocated. Dewey believed that if education was to accomplish its ends, both for society and individual learners, it must be based on experience (p. 89). Brown, Collins and Duguid (1989) proposed that knowledge is situated. That is, the physical and social context should be structured so activities that occur in a learning environment contribute to the cognitive understanding of that which is to be learned. Dewey (1938) and Brown, Collins and Duguid (1989) purport that "how" something is learned should be given as much consideration as "what" is to be learned. Findings from this study suggested that subjects recognized the pedagogical value of preservice teacher education' experiences that enabled them to not only learn about group work/cooperative learning as a model of instruction but also provided them the opportunity to experience the model.

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Appendix A

Student Name:

TEST YOUR KNOWLEDGE OF "COOPERATIVE LEARNING" AS A TEACHING STRATEGY

I. Directions: Circle the "T" in front of the items that you believe are true about cooperative learning (working in small groups on an assigned task in a classroom). Circle the "F" in front of the items that you believe to be false regarding cooperative learning. If you do not know whether the item is true or false circle "DK" for don't know.

T F DK 1. Students' academic achievement suffers as a result of group work.

T F DK 2. Cooperative learning results in students having a more positive attitude toward school.

T F DK 3. Cooperative learning deters racial prejudice among students.

T F DK 4. Cooperative learning leads to decreased student' productivity because students socialize more and do not stay on task.

T F DK 5. Cooperative learning causes frustration in brighter learners because they are "held back in making progress" by the presence of slower learners in a given group.

T F DK 6. Cooperative learning encourages a positive attitude toward academic work.

T F DK 7. Self-esteem of low level students suffers in cooperative learning activities.

T F DK 8. Cooperative learning improves peer relations among students of different ability levels.

T F DK 9. Group work causes students to be less dependent on the teacher for their learning.

T F DK 10. The reward and structure of the group task should be intertwined in order for group work to be most effective.

Appendix B

Name:_____Date_____

SURVEY

==========

Directions: Use a scale of 1-7 with "1" representing "strongly disagree" (unquestionably wrong or inaccurate) and "7" representing "strongly agree" (unquestionably correct or accurate) to indicate your agreement or disagreement with each of the following statements. Circle the number that most closely represents your beliefs regarding each statement.

==========

1-2-3-4-5-6-7 A. I think cooperative group work lightens the work load for all group members because the responsibility for completion of a task is shared.

1-2-3-4-5-6-7 B. I like small group learning because it reduces competitiveness and builds camaraderie.

1-2-3-4-5-6-7 C. I think students should be grouped so that all members are about the same ability level.

1-2-3-4-5-6-7 D. I feel competent to plan cooperative learning activities for my students in my grade interest/major (which is _____).

1-2-3-4-5-6-7 E. I think I will use cooperative learning as a teaching strategy very frequently.

1-2-3-4-5-6-7 F. When I am involved as a student in cooperative learning activities, I feel closer to my classmates as a result of the group work.

1-2-3-4-5-6-7 G. When working in learning teams, I think I put forth more effort to perform well on assignments because I feel an obligation toward other group members to do well.

1-2-3-4-5-6-7 H. I think it is easy to trust other group members to carry their share of the group work load.

1-2-3-4-5-6-7 I. I think group learning helps students learn to be tolerant and considerate of the opinions of other group members.

1-2-3-4-5-6-7 J. I find it easy to become involved in learning when working in a (small) group.

Appendix C

Procedures for Analyzing Qualitative Data

1. Assign an identification number to each data source (every interview transcript).
2. Read four of the interview transcripts and segment each of them. A segment, according to Tesch (1990) is a portion of ... "text that is comprehensible by itself and contains only one idea, episode or piece of information" (p. 116).
3. Reread a second time and identify topics for each of the data segments.
4. Make a list of all topics identified in each of the four transcripts on one page. Have four columns. Compare all topics and draw lines between to connect similar topics.
5. On a separate paper, cluster similar topics (those connected by lines). Choose the best fitting name from the cluster of topics from among the existing labels or invent new ones that capture the essence of meaning better.
6. Make a new list that contains three columns:
   a. Major topics that were constructed from clusters.
   b. Unique topics that seem important to research purpose in spite of their rarity.
   c. Leftovers
7. Make a copy of transcripts just used and use the list of topics in the first and second columns in #6 above as a preliminary organizing system. List these topics next to appropriate segments.
8. Work with two new transcripts and try out the preliminary organizing system. Segment the transcripts and then use the topics to label the segments.
9. Refine the organizing system.
   a. List topics (that by now have begun to turn into categories) that occurred in all six transcripts in one list.
   b. Make a list of the topics/categories unique to the research but did not necessarily occur in all the transcripts.
   c. Look at topics/categories for relationships and consider whether or not some are sub-categories of others. Construct

a type of semantic map relating general topics/categories to sub-topics/sub/categories. This will be used as a preliminary outline for the final report of findings.

10. Make abbreviations for each category and sub-category name. Add abbreviations to lists made in #9 a and b above. Alphabetize the lists (categories and sub-categories). Segments may fit in more than one category.
11. Code each segment of data using the abbreviated category and sub-category labels. If a segment fits in more than one category, label the segment with all appropriate category labels.
12. Assign the data source identification number to each segment so that all segments can be traced to original sources.
13. Assemble data belonging to each of the categories in file folders using Tesch's (1990) adaption of Bogdan and Bilken's (1982) cut and put in file folder approach.

a. Make two copies of all categorized data. One will serve as the master copy and the second will be cut apart to be placed in category folders.

b. For those segments that fit into different categories, additional copies will be made.

14. Summarize the data in each folder and select illustrative quotes that might be used in the final report.
15. Analyze content of the folders in light of the research questions. Look for:
    1. commonalities in content
    2. uniqueness in content
    3. confusions and contradictions in content
    4. missing information with regard to the research questions.
16. Triangulate the qualitative data with the quantitative data to answer research questions.